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| APPLICATION NO.                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/820,120                        | 04/08/2004  | Yoshikazu Miyajima   | 03560.003451        | 8660             |
| 5514                              | 7590        | 10/05/2006           | EXAMINER            |                  |
| FITZPATRICK CELLA HARPER & SCINTO |             |                      | GUTIERREZ, KEVIN C  |                  |
| 30 ROCKEFELLER PLAZA              |             |                      | ART UNIT            |                  |
| NEW YORK, NY 10112                |             |                      | PAPER NUMBER        |                  |
|                                   |             |                      | 2851                |                  |

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                 |  |
|------------------------------|-------------------------------|---------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/820,120 | Applicant(s)<br>MIYAJIMA ET AL. |  |
|                              | Examiner<br>Kevin Gutierrez   | Art Unit<br>2851                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9, 10 and 16-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9, 10 and 16-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Examiner Remarks*

1. The Examiner contends that the Hara reference as applied to the previous claims is further interpreted to read on the amended claims. The cooling unit of the claimed invention is also interpreted as the temperature-controlled air system disclosed by Hara. Therefore, the claimed invention is rendered as unpatentable by Hara.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 10, 16-18, 21-22 and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Hara (US 2002/0015139).

Regarding claim 16, Hara discloses “a stage apparatus comprising:

- base plate (fig. 4 - 61; surface plate);
- a moving unit (106, 111A-B, 65, 75B) moveable along a surface of said base plate ([0074], lines 1-4);
- a linear motor (fig. 4 - 68A) which drives said moving unit [0074], lines 1-4, where 2 linear motors are disclosed, but only one is shown) and includes a coil unit (75A-B) in said moving unit (106, 111A-B, 65, 75B).”

- a gas bearing which supports said moving unit on the base plate ([0075], lines 1-6); and
- a cooling unit which cools said coil unit and is provided in said moving unit ([0082], lines 14-17), wherein said cooling unit cools a gas used by gas bearing ([0090], lines 18-22, where temperature controlled air is supplied to the gas bearings)."

Regarding claim 9, Hara discloses "wherein said heat exchanger is disposed near an outer periphery of said moving unit (where the cooling unit is installed in the centralized piping 203 [0081], lines 7-8, and to branch pipes 203A, 203B; see Fig. 6)."

Regarding claim 10, Hara discloses "further comprising a laser interferometer (76, 77) from measuring the position of said moving unit ([0075], lines 7-9, where coordinates are used for positioning of stage unit)."

Regarding claim 17, Hara discloses "wherein said cooling unit is disposed between said coil unit and a substrate (80; wafer) mounted on said moving unit (where the cooling unit is installed in the centralized piping 203 [0081], lines 7-8, and to branch pipes 203A, 203B; see Fig. 6)."

Regarding claim 18, Hara discloses "further comprising a supply pipe which forms part of said gas bearing and is disposed adjacent to said cooling unit ([0086], lines 14-16, wherein the supply pipe is adjacent to the temperature controller ([0081], lines 6-8)."

Regarding claim 21, Hara discloses “wherein said moving unit comprises a fine-motion actuator which moves a substrate (80) mounted on said moving unit ([0076], lines 10-14), and said cooling unit is disposed between said cooling unit and said fine-motion actuator (where the cooling unit is installed in the centralized piping 203 [0081], lines 7-8, and to branch pipes 203A, 203B; see Fig. 6).”

Regarding claim 22, Hara disclose the limitations set forth in claim 16 and further discloses

- a base plate (61);
- “a first moving unit (63, 64 comprise of 105 and 101) movable along a surface of said base plate (61);
- a linear motor (63, 64) which drives said first moving unit and includes a coil unit (64A-B) in said first moving unit;
- a second moving unit (68A comprise of 75A-B) which moves with respect to said first moving unit; and
- a cooling unit disposed between said first and second moving units, to absorb a heat transmission from said coil unit to said second moving unit (where the cooling unit is installed in the centralized piping 203 [0081], lines 7-8, and to branch pipes 203A, 203B, where the air is temperature-controlled and exhausted throughout).”

Regarding claims 24-25, Hara discloses “wherein the linear motor is a surface motor (where linear motors 64, 63, 68A are moved over surface 61).”

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara in view of Emoto (US 2001/0001248).

Hara discloses a “wherein cooling unit uses a coolant ([0081], lines 6-8.” Hara does not disclose (claim 19) “a direction in which the coolant flows is opposite to that in which the gas flows through said supply pipe” and (claim 20) “at least a portion of said supply pipe is surrounded by the coolant.”

However, having a direction in which the coolant flows is opposite to that in which the gas flows through the supply pipe, which at least a portion is surrounded by the cooling unit is known to the art as it is evident by the teaching of Emoto (fig. 1A, where the cooling means circulates a cooling media 3a-3c which flows in opposite vertical directions (indicated by arrows)). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the cooling unit of Hara by having coolant flowing in an opposite direction of the gas flow with a supply pipe between the circulating cooling media. The ordinary artisan would have been motivated to modify the cooling unit of Hara in a manner described above for at least the purpose to promote the cooling of the gas.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hara.

Hara discloses the claimed invention except for “wherein second moving unit moves within a range smaller than that of first moving unit.” It would have been obvious to one having ordinary skilled in the art at the time the invention was made to have “wherein second moving unit moves within a range smaller than that of first moving unit,” since it has been held that were the general conditions of a claim are disclosed in the prior art, discovering the optimum and workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

#### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 8:00 a.m. - 5:30 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Diane Lee can be reached on (571)-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin Gutierrez  
Examiner  
Art Unit 2851

Tuesday, September 26, 2006

Rodney Fuller  
Primary Examiner

A handwritten signature in black ink, appearing to read 'R. Fuller', with a stylized flourish at the end.